of view. It is divided into five chapters, the first two being concerned with the coal itself, the second two with the products, namely, oil tests and gas analysis, and the final chapter with fan and ventilation tests.

The volume has evidently been put together with great care by its authors, who have had practical experience of their subject. The description of the apparatus and methods is clear and concise, and illustrated by diagrams and by actual examples, so that the student should have no difficulty in carrying out the different operations. J. B. C.

OUR BOOKSHELF.

Some Frontiers of To-morrow: An Aspiration for Europe. By Prof. L. W. Lyde. Pp. viii + 120. (London: A. and C. Black, Ltd., 1915.) Price 2*s.* 6*d.*

IN this small volume Prof. Lyde makes suggestions for the settlement of European frontiers after the war. Three considerations are laid down as of vital importance: (1) that the frontier should be associated, not with war, but with peace; (2) that the unit of area should have some direct relation to national sentiment; (3) that inability to assimilate should disqualify any Power for territorial expansion. The first suggestion is the most important. Prof. Lyde maintains that frontiers should be identified with features related to the meeting of people in the ordinary routine of peaceful intercourse. If this be true, it follows that a navigable river makes the best frontier. A defensive frontier—the type of frontier of the past—will never put an end to conflict between neighbours, but may even promote it. An inhabited, in contrast to an uninhabited, frontier belt encourages contact between adjoining people, discourages racial and cultural antagonism, and so minimises the chance of friction, and promotes civilisation. Prof. Lyde is always stimulating, even if he fails to convince at times. His book is crammed with ideas from beginning to end, which should attract the attention of statesmen. But it will be hard to convince those who have treaty making in their hands that accurate scientific knowledge is a real asset in the matter, and that the geographer is the expert who has the knowledge and should be consulted.

R. N. R. B.

Liverpool Marine Biology Committee. L.M.B.C. Memoirs on Typical British Marine Plants and Animals. Edited by Prof. W. A. Herdman. xxiii. Tubifex. By G. C. Dixon. Pp. viii + 100 + 7 plates. (London: Williams and Norgate, 1915.) Price 3*s.* 6*d.*

Tubifex rivulorum is a slender Oligochæte, not more than two inches long, often found in large numbers in the mud of rivers and streams, but it occurs frequently also in brackish tidal waters, and therefore a memoir on this worm is appropriately included in a series dealing with marine animals. Of the aquatic Oligochætes, Tubifex is the type usually chosen for study in advanced classes in this country. Accounts of the different systems of organs have appeared in various zoological publications, but for figures of the worm the student has hitherto been dependent chiefly on the memoirs of d'Udekem (1855) and Vejdovsky (1884). Miss Dixon has revised and extended the previous accounts, with the result that her memoir gives a careful and reasonably full description of the structure of the worm, illustrated by seven well-drawn plates, of which the first in particular will be useful to the student.

After a few general remarks on the habits of the worm, an account is given of the external features and of the various systems of organs, the hermaphrodite reproductive apparatus being described in considerable detail, almost one-half of the memoir being devoted to this group of organs. Of considerable interest is the discovery that Tubifex possesses dimorphic spermatozoa. Both kinds of spermatozoa are of the elongate type and are tailed, but they differ in size and in the proportions of their parts. In the ordinary spermatozoa the head forms about one-sixth of the total length. The second type of sperm is about three times as long as the ordinary one, and the head forms about one-half the total length.

A good account is given of the remarkable spermatophores of Tubifex, which are moulded into their characteristic form in the spermathecal duct.

The memoir concludes with a brief reference to the parasites of Tubifex and a bibliography.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Distances at which Sounds of Heavy Gun-firing are Heard.

REFERRING to the correspondence on this subject, I have been collecting information as to places at which the sound of the firing in Belgium has been heard in this country.

I have undoubted records of its having been heard at many places throughout the south-east of England (all of them in Essex, Kent, Sussex, or Surrey), and am giving the result of my inquiries in a paper to be read before the Essex Field Club on October 30. Here, at a distance of about 125 miles from Ypres (taking that town for convenience, as a known centre), I have heard firing quite unmistakably since the beginning of the war—often all day, and for many days in succession, and frequently at night too.

So far as I have been able to ascertain, the greatest distance from Ypres at which the firing has been heard unmistakably is about 140 miles, though I have a less satisfactory record up to 150 miles. No doubt, however, it has been heard further in favourable conditions. Observations seem to show that the direction of the wind has less to do with the transmission of the sound than certain atmospheric conditions, though it is not easy to ascertain exactly what these conditions are.

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My house here stands in a fairly open and elevated position, about 155 ft. O.D., with no higher ground in the immediate vicinity, or between me and Ypres. Many of my neighbours, who live in similar situations, also hear the sound, and recognise clearly what it is. It seems much less audible at lower elevations, and quite inaudible among houses. For instance, I cannot hear of its ever having been heard in the adjacent town of Chelmsford, or in any part of London.

Miller Christy.

Broom Wood Lodge, Chignal St. James,
Chelmsford, October 19.

The Cumberland Earthquake of October 2.

I was interested to read the note in Nature of October 21 (p. 208) referring to an earthquake in the Lake District, Cumberland, on October 2, at 3.15 a.m. My wife and I spent some weeks at Seatoller, Borrowdale, leaving on October 2. Early in the morning of that day we were awakened by a strange noise and the house vibrating. The noise and vibration were so completely similar to what occurs in my own house when the hot-water boiler is overheated and steam, condensing in the pipes, causes "hammering," that I was on the point of getting up to turn on the bathroom tap, when it ceased. As we were leaving in the morning the proprietors inquired if we had heard the noise in the night, and I replied at once that I had heard the hammering in the pipes of the hot-water system, but was told that it was quite impossible for the water to have been hot at the time. I had no idea of the true explanation until I read the note referred to. Seatoller is about 30 miles S.S.W. of Carlisle and 4½ miles N.N.E. of Scafell Pike. Possibly it may be of interest to record that at this place the earthquake was accompanied by concussions and vibrations sufficient to waken the inhabitants.

Frederick Soddy.

October 23.

The Etymology of "Chincough."

Whooping-cough is, or used to be, called in the south of Scotland, "chincough," but the "ch" was hard, so that it sounded kincough, or kink-cough. In Jamieson's Scottish Dictionary the word "kink" has the meanings (1) a violent fit of coughing attended with suspension of breathing, (2) a regular fit of the chincough. "To kink" is to labour for breath in a severe fit of coughing. The more purely Scottish word for whooping-cough is "kinkhost," in the Belgic language *kink-hoest*.

L. B.

October 23.

There can, I think, be no doubt that "chincough" is a good English word, meaning whooping-cough and nothing else. It has nothing to do with *chien* (a dog), as Mr. Hart supposes (Nature, October 21), or with chin, although to anyone who has noticed the depression and thrusting forward of the lower jaw during a paroxysm this derivation might seem probable. The word is, according to Skeat, properly chink-cough, and in Scotland and some parts of England a paroxysm is called a kink, which, again according to Skeat, means a catch in the breath, from kik, or kuk, to gasp, an imitative word, which is also the base of cough. The term kinkhost, still in use in Scotland, resembles the German equivalent, *keuchhusten*, which is also imitative. The French *coqueluche* is more puzzling, but probably has reference to the crowing inspiration which follows the expiratory spasm.

Dawson Williams.

London, October 22.

As your correspondent (Nature, October 21) points out, chincough has certainly nothing to do with "hiccough"; but has it anything to do with the French *chien*=a dog, as he supposes? Chincough is the softer English equivalent of the Scotch kink-host (Dutch, *kink-hoest*). Besides, the noun there is also the verb, to kink (O. Dutch, *kinken*=to cough), and even an Englishwoman, at least in the north, who calls the disease whooping-cough, will tell one when her child began to "kink" with its cough. My dictionary compares the word with the Anglo-Saxon "cincung"=a fit of laughter, and kink is sometimes also used in that sense, or in connection with any choking inspiratory spasm. Finally, there is nothing in the sound of whooping-cough to suggest a dog, though the cough of croup might do so.

M. D.

Longitudes of Two Markings on Jupiter.

In Nature of October 14 the longitudes of the S. Tropical Disturbance and the Red Spot which I gave should be in each case minus 75·14°, if they are to correspond with the adopted period of System II. :—

S. Tropical Disturbance

Date 1915	P. end	f. end
Sept. 11	313·1°	—
13	310·8°	—
20	308·4°	—
21	—	42·6°
26	—	37·7°
28	—	36·5°
30	305·3°	35·3°
Oct. 1	—	34·6°

Red Spot Hollow

Date 1915	P. shoulder	f. shoulder
Sept. 10	—	185 1°
12	149·5°	—
17	149·1°	186·0°
19	148 9°	187·6°
27	—	185·1°
29	—	185·1°

Scriven Bolton.

CHINESE DEFENSIVE ARMOUR.[1]

The somewhat ponderous title of the work before us rather obscures the subject of this monograph, which is upon the origin and history of defensive armour, a theme of considerable cultural importance and here treated systematically for the first time. As a result, we have a masterly description of Oriental protective armour, and suggestive fresh light is also thrown upon certain sources of early Chinese civilisation.

The research is based primarily upon a large collection of ancient Chinese clay figures dug up (apparently by the author) from graves in the provinces of Shen-si and Ho-nan during the years 1908–1910, and deposited among the rich collections from the Far East now in the Field Museum of Natural History at Chicago, of which the author is a well-known curator and field-explorer.

The hides of the archaic Chinese cuirasses of the pre-metal age are ascribed by ancient tradition to two animals named respectively *Se* and *Si*, which are identified by the majority of sinologists with one or two species of rhinoceros. Dr. Laufer, who combines with his scientific physical training also a scholarly knowledge of Chinese, revises the Chinese texts at first hand, and appears to substantiate his identification of the *Se* as the single-horned and the *Si* as the two-horned Sumatran rhinoceros. In addition to the mass of mythological and folk-lore references to

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[1] "Chinese Clay Figures." Part i., Prolegomena on the History of Defensive Armour. By B. Laufer. Field Museum of Natural History Publication 177, Anthropological Series, vol. xiii., No. 2. Pp. 69–315+64 plates. (Chicago: Field Museum of Natural History, 1914.)

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